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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,854	01/10/2002	Claude Oudet	16786-2	4200

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EXAMINER

NGUYEN, HANH N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,854

Applicant(s)

OUDET ET AL.

Examiner

Nguyen N Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 16-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities: "[$I - 5 \times 10^{-4} (U_{\max} - 1.7 \times 10^{-4} J/\mu_0)] \geq 0.5$ or the value of $0.35\mu_0$ " is confusing because it does not specify the value of $0.35\mu_0$ is the value of E as described in the specification (Page 7, line 14). Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16,17,27,28,31,32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Field.

Regarding claim 16, Field discloses an electromagnetic device, that is a linear or rotary single- or multi-phase motor or generator, comprising, for each phase, at least two relatively-movable sets of teeth (26 and 58 as shown in Fig. 2) made of soft magnetic material (Col. 3, lines 65-68), one set of teeth being (58) associated with the stator (40) and the other (26) with the rotor (10). The structure disclosed by Field having the stator size of 2 inches in diameter, the diameter of the rotor is 1.15 inches, the axial thickness of the magnet is .125 inches for the purpose of achieving maximum efficiency. Field fails to show the device wherein the width E of the minimum air-gap

between teeth of the rotor and of the stator meets the optimum range of working as specified in claim 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the machine to meet those criteria, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 17, the value of width E of the air-gap is given little patentable weight in view of re Aller, 105 USPQ 233.

Regarding claim 27, Field discloses a device wherein the device is a hybrid motor comprising a permanent magnet (22) delivering magnetic potential. Field fails to show that the total magnetic potential difference at the terminals of the air-gap is substantially equal to $0.5U_{max}$.

However, the limitation "the total magnetic potential difference at the terminals of the air-gap is substantially equal to $0.5U_{max}$." is given little patentable weight in view of re Aller, 105 USPQ 233.

Regarding claim 28, Field also discloses a device wherein the rotor (10 in Fig. 3) is generally cylindrical in shape being constituted by at least one assembly in axial alignment comprising the permanent magnet (20) in the form of an axially-magnetized annular disk, and two magnetically-permeable rotor pole pieces (18, 20) disposed on either side of said disk.

Regarding claim 31 and 32, the range of working of the width E is given little patentable weight in view of re Aller, 105 USPQ 233.

3. Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Field in view of Brigham.

Regarding claim 20, Field shows all limitations of the claimed invention except showing a device wherein hollows between the rotor teeth are essentially of parabolic shape.

However, Brigham discloses a device wherein hollows between the stator teeth (Fig. 3) are essentially of parabolic shape for the purpose of improving the operating characteristics of the device.

Since Field and Brigham are in the same field of endeavor, the purpose disclosed by Brigham would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by forming the rotor teeth with parabolic shape as taught by Brigham for the purpose of improving the operating characteristics of the device

Regarding claim 21, Field shows all limitations of the claimed invention except showing a device wherein hollows between the teeth of the stator are essentially of parabolic shape.

However, Brigham discloses a device wherein hollows between the stator teeth (Fig. 3) are essentially of parabolic shape for the purpose of improving the operating characteristics of the device.

Since Field and Brigham are in the same field of endeavor, the purpose disclosed by Brigham would have been recognized in the pertinent art of Kuwahara.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by forming the rotor teeth with parabolic shape as taught by Brigham for the purpose of improving the operating characteristics of the device.

Regarding claim 22-25, the workable range of the angle formed between the tangents to the profile of the teeth on the corners is given little patentable weight in view of re Aller, 105 USPQ 233.

4. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Field in view of Takura.

Regarding claim 18, Field shows all limitations of the claimed invention except showing the width E of the air gap is greater than 1.2×10^{-4} .

However, Takura discloses a device wherein width E of the air gap is greater than 1.2×10^{-4} (Col. 6, line 43) for the purpose of simplifying manufacturing process.

Since Field and Takura are in the same field of endeavor, the purpose disclosed by Takura would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by using air gap greater than 1.2×10^{-4} as taught by Takura for the purpose of simplifying manufacturing process.

Regarding claim 19, Field shows all limitations of the claimed invention except showing the width E of the air gap is greater than 1.5×10^{-4} .

However, Takura discloses a device wherein width E of the air gap is greater than 1.5×10^{-4} (Col. 6, line 43) for the purpose of simplifying manufacturing process.

Since Field and Takura are in the same field of endeavor, the purpose disclosed by Takura would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by using air gap greater than 1.5×10^{-4} as taught by Takura for the purpose of simplifying manufacturing process.

5. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Field in view of Suzuki et al.

Regarding claim 26, Field discloses a device wherein the pole pieces of the stator (12 in Fig. 3) are uniform in length in the axial direction, and uniform in width in a radial plane (Fig. 2) except showing the coils are prefabricated coils on insulating supports, said coils and pole pieces of the stator being arranged in such a manner as to enable the prefabricated coils to be put into place on said stator pole pieces.

However, Suzuki et al. disclose a device wherein the coils (15 in Fig. 7) are prefabricated coils on insulating supports (14 in Fig. 7 and Col. 4, lines 1-3), said coils and pole pieces (12) of the stator being arranged in such a manner as to enable the prefabricated coils to be put into place on said stator pole pieces for the purpose of simplifying the manufacturing process.

Since Field and Suzuki are in the same field of endeavor, the purpose disclosed by Suzuki would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by using prefabricated coils to be put into place on said stator pole pieces as taught by Suzuki et al. for the purpose of simplifying the manufacturing process.

6. Claim 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Field in view of Bahn.

Regarding claim 29, Field shows all limitations of the claimed invention except showing the device is a variable reluctance motor or generator.

However, Bahn discloses a device wherein the device is a variable reluctance motor (without permanent magnet) for the purpose of reducing cost.

Since Field and Bahn are in the same field of endeavor, the purpose disclosed by Bahn would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by using a rotor without magnet as taught by Field for the purpose of reducing cost.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Field in view of Bahn and further in view of Horst.

Regarding claim 30, Field and Bahn show all limitations of the claimed invention except showing the device wherein an end of a stator pole piece is curved with a radius such that when the teeth of the stator and the rotor are facing each other, the air-gap between them is of varying width.

However, Horst discloses a device wherein an end of a stator pole piece is curved with a radius such that when the teeth of the stator and the rotor are facing each other, the air-gap between them is of varying width (Fig. 10a) for the purpose of improving the operating characteristics of the device.

Since Field, Bahn and Horst are in the same field of endeavor, the purpose disclosed by Bahn would have been recognized in the pertinent art of Field.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Field by using stator pole pieces with curved radius as taught by Field for the purpose of improving the operating characteristics of the device.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (703) 305-3466. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

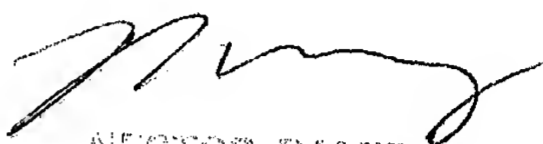
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

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Art Unit: 2834

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HNN

August 21, 2002


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